

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P938658

Luminaire Tested: HLB4LSFS5-1000LM-3500K

Issue Date: 1/15/2025

Test Information

Test Method: LM-79-2019
Report Number: P938658
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2404364A001)
Test Lab:
Issue Date: 1/15/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: HLB4LSFS5-1000LM-3500K
Description: 4IN SELECTABLE LUMENS, 90CRI, DIMMING TO 10%
Light Source: SELECTABLE CCT 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1145.0 lumens
Efficiency: N/A
Efficacy: 97.9 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.3 / 1.38
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

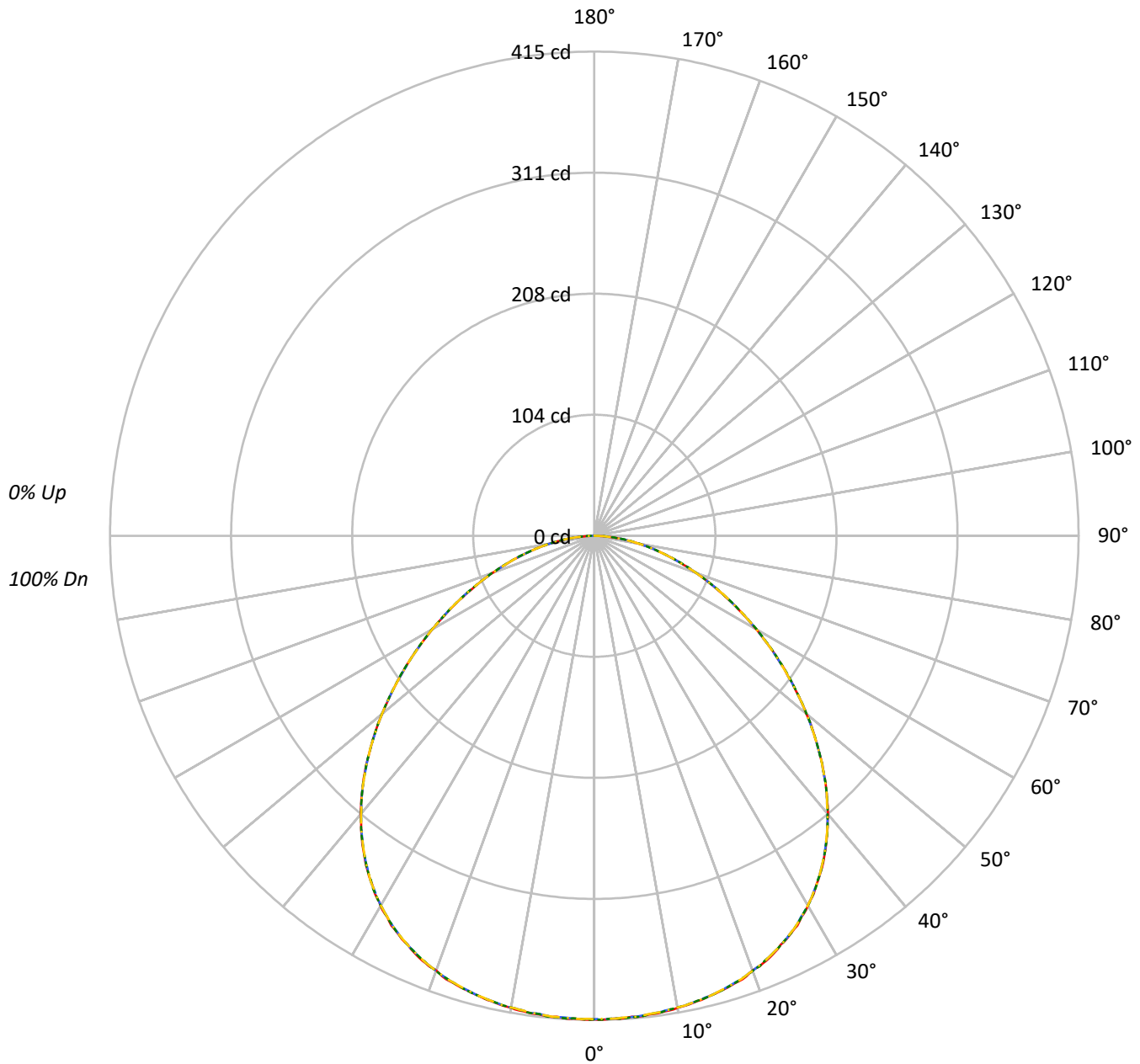
Input Watts (W): 11.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	109	105	100	97	106	102	98	95	98	95	92	94	92	89	91	88	87	85		
2	100	92	85	79	97	90	84	78	86	81	77	83	79	75	80	76	73	71		
3	91	81	73	66	89	79	72	66	76	70	65	73	68	63	71	66	62	60		
4	83	72	63	56	81	70	62	56	68	61	55	66	59	55	63	58	54	52		
5	77	64	55	49	75	63	55	49	61	54	48	59	53	47	57	52	47	45		
6	71	58	49	43	69	57	49	43	55	48	42	53	47	42	52	46	41	39		
7	66	53	44	38	64	52	43	38	50	43	37	49	42	37	47	41	37	35		
8	61	48	40	34	60	47	39	34	46	39	33	45	38	33	44	38	33	31		
9	57	44	36	30	56	43	36	30	42	35	30	41	35	30	40	34	30	28		
10	54	41	33	28	52	40	33	28	39	32	27	38	32	27	37	31	27	25		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	52165	52165	52165	52165
5°	52288	52301	52288	52301
10°	52509	52471	52509	52471
15°	52845	52845	52845	52845
20°	53102	53142	53102	53142
25°	53364	53336	53364	53336
30°	53216	53187	53216	53187
35°	52543	52466	52543	52466
40°	51175	51093	51175	51093
45°	49140	49122	49140	49122
50°	46441	46500	46441	46500
55°	43553	43575	43553	43575
60°	40347	40473	40347	40473
65°	37074	37253	37074	37253
70°	33963	34184	33963	34184
75°	30974	31266	30974	31266
80°	28047	28410	28047	28410
85°	24114	24547	24114	24547

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 89.5°

Luminance: 51917 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.4	3.4
10°-20°	114.6	10.0
20°-30°	176.9	15.5
30°-40°	213.2	18.6
40°-50°	212.3	18.5
50°-60°	177.3	15.5
60°-70°	124.0	10.8
70°-80°	68.0	5.9
80°-90°	19.3	1.7
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	330.9	28.9
0°-40°	544.0	47.5
0°-60°	933.7	81.5
0°-90°	1145.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1145.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	414	414	414	414	414	
5°	414	414	414	414	414	39
15°	406	406	406	406	406	115
25°	384	384	384	384	384	177
35°	342	342	342	342	342	213
45°	276	276	276	276	276	212
55°	198	199	198	199	198	177
65°	124	125	124	125	124	124
75°	64	64	64	64	64	68
85°	17	17	17	17	17	19
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5
0.5°	414.9	414.5	414.1	414.3	414.8	414.3	414.1	414.5	414.9	414.5	414.1
1°	414.7	414.2	414.1	414.2	414.8	414.2	414.1	414.2	414.7	414.2	414.1
1.5°	414.7	414.4	414.4	414.3	414.4	414.3	414.4	414.4	414.7	414.4	414.4
2°	414.3	414.4	414.2	414.2	414.1	414.2	414.2	414.4	414.3	414.4	414.2
2.5°	414.2	414.2	414.1	414.2	414.0	414.2	414.1	414.2	414.2	414.2	414.1
3°	414.7	414.2	414.0	414.1	414.5	414.1	414.0	414.2	414.7	414.2	414.0
3.5°	414.4	414.4	413.7	413.8	414.4	413.8	413.7	414.4	414.4	414.4	413.7
4°	414.0	413.8	413.6	413.5	414.2	413.5	413.6	413.8	414.0	413.8	413.6
4.5°	413.5	413.5	413.6	413.6	414.0	413.6	413.6	413.5	413.5	413.5	413.6
5°	413.9	413.7	413.7	413.5	414.0	413.5	413.7	413.7	413.9	413.7	413.7
5.5°	413.9	413.5	413.5	413.3	414.0	413.3	413.5	413.5	413.9	413.5	413.5
6°	413.5	413.1	413.0	413.0	413.5	413.0	413.0	413.1	413.5	413.1	413.0
6.5°	413.1	412.9	412.5	412.9	412.8	412.9	412.5	412.9	413.1	412.9	412.5
7°	413.0	412.7	412.5	412.5	412.5	412.5	412.5	412.7	413.0	412.7	412.5
7.5°	412.9	412.5	412.3	412.3	412.7	412.3	412.3	412.5	412.9	412.5	412.3
8°	412.6	412.3	412.0	412.0	412.5	412.0	412.0	412.3	412.6	412.3	412.0
8.5°	412.1	411.9	411.5	411.8	411.7	411.8	411.5	411.9	412.1	411.9	411.5
9°	411.9	411.5	411.2	411.3	411.2	411.3	411.2	411.5	411.9	411.5	411.2
9.5°	411.5	411.2	410.7	411.0	410.9	411.0	410.7	411.2	411.5	411.2	410.7
10°	410.9	410.9	410.7	410.5	410.6	410.5	410.7	410.9	410.9	410.9	410.7
10.5°	410.6	410.5	410.4	410.3	410.2	410.3	410.4	410.5	410.6	410.5	410.4
11°	410.2	410.0	410.1	409.9	410.1	409.9	410.1	410.0	410.2	410.0	410.1
11.5°	409.8	409.5	409.4	409.3	409.4	409.3	409.4	409.5	409.8	409.5	409.4
12°	409.1	409.0	408.8	408.6	408.8	408.6	408.8	409.0	409.1	409.0	408.8
12.5°	408.6	408.5	408.3	408.1	408.2	408.1	408.3	408.5	408.6	408.5	408.3
13°	408.3	408.2	407.9	408.0	407.8	408.0	407.9	408.2	408.3	408.2	407.9
13.5°	407.5	407.8	407.1	407.8	407.5	407.8	407.1	407.8	407.5	407.8	407.1
14°	406.8	407.0	406.7	406.7	406.8	406.7	406.7	407.0	406.8	407.0	406.7
14.5°	406.3	406.1	406.1	405.9	406.1	405.9	406.1	406.1	406.3	406.1	406.1
15°	405.6	405.3	405.2	405.3	405.6	405.3	405.2	405.3	405.6	405.3	405.2
15.5°	404.8	404.7	404.5	404.7	405.1	404.7	404.5	404.7	404.8	404.7	404.5
16°	404.4	404.1	403.9	403.9	404.4	403.9	403.9	404.1	404.4	404.1	403.9
16.5°	403.7	403.4	403.1	403.4	403.3	403.4	403.1	403.4	403.7	403.4	403.1
17°	402.8	402.5	402.4	402.3	402.5	402.3	402.4	402.5	402.8	402.5	402.4
17.5°	402.0	401.6	401.5	401.5	401.7	401.5	401.5	401.6	402.0	401.6	401.5
18°	401.4	400.8	400.8	400.5	401.0	400.5	400.8	400.8	401.4	400.8	400.8
18.5°	400.8	400.0	400.0	399.8	399.9	399.8	400.0	400.0	400.8	400.0	400.0
19°	399.6	399.3	398.8	398.6	399.1	398.6	398.8	399.3	399.6	399.3	398.8
19.5°	397.9	398.0	397.7	397.9	398.0	397.9	397.7	398.0	397.9	398.0	397.7
20°	396.5	397.1	397.0	396.9	396.8	396.9	397.0	397.1	396.5	397.1	397.0
20.5°	395.8	396.1	395.6	395.9	395.8	395.9	395.6	396.1	395.8	396.1	395.6
21°	395.3	395.1	394.5	394.3	395.2	394.3	394.5	395.1	395.3	395.1	394.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	391.7	391.3	390.9	391.1	391.0	391.1	390.9	391.3	391.7	391.3	390.9
23°	390.3	389.9	389.6	389.6	389.5	389.6	389.6	389.9	390.3	389.9	389.6
23.5°	388.9	388.3	388.1	388.2	388.2	388.2	388.1	388.3	388.9	388.3	388.1
24°	387.3	387.3	387.0	386.7	387.0	386.7	387.0	387.3	387.3	387.3	387.0
24.5°	385.3	386.1	385.4	385.3	385.5	385.3	385.4	386.1	385.3	386.1	385.4
25°	384.3	384.0	384.0	383.8	384.1	383.8	384.0	384.0	384.3	384.0	384.0
25.5°	382.9	382.4	382.5	382.4	382.4	382.4	382.5	382.4	382.9	382.4	382.5
26°	381.2	380.9	380.8	380.8	381.1	380.8	380.8	380.9	381.2	380.9	380.8
26.5°	379.5	379.3	379.1	379.0	379.5	379.0	379.1	379.3	379.5	379.3	379.1
27°	378.0	377.7	377.5	377.2	377.6	377.2	377.5	377.7	378.0	377.7	377.5
27.5°	376.7	376.0	375.6	375.7	375.7	375.7	375.6	376.0	376.7	376.0	375.6
28°	374.4	374.0	373.8	373.8	374.0	373.8	373.8	374.0	374.4	374.0	373.8
28.5°	371.9	371.9	371.6	371.8	371.9	371.8	371.6	371.9	371.9	371.9	371.6
29°	370.4	370.1	369.8	369.8	370.0	369.8	369.8	370.1	370.4	370.1	369.8
29.5°	368.5	368.0	367.7	367.5	367.9	367.5	367.7	368.0	368.5	368.0	367.7
30°	366.2	365.9	365.8	365.5	366.0	365.5	365.8	365.9	366.2	365.9	365.8
30.5°	363.7	363.5	363.7	363.5	364.0	363.5	363.7	363.5	363.7	363.5	363.7
31°	361.9	361.5	361.5	361.4	361.7	361.4	361.5	361.5	361.9	361.5	361.5
31.5°	359.8	359.5	358.9	359.0	359.4	359.0	358.9	359.5	359.8	359.5	358.9
32°	357.1	357.1	356.7	356.6	357.3	356.6	356.7	357.1	357.1	357.1	356.7
32.5°	354.3	354.5	354.5	354.2	354.6	354.2	354.5	354.5	354.3	354.5	354.5
33°	352.1	352.1	352.3	351.9	351.7	351.9	352.3	352.1	352.1	352.1	352.3
33.5°	349.7	349.7	349.4	349.4	349.4	349.4	349.4	349.7	349.7	349.7	349.4
34°	347.0	347.2	346.6	346.7	347.0	346.7	346.6	347.2	347.0	347.2	346.6
34.5°	344.7	344.3	344.0	343.9	344.5	343.9	344.0	344.3	344.7	344.3	344.0
35°	342.0	341.3	341.4	341.3	341.5	341.3	341.4	341.3	342.0	341.3	341.4
35.5°	339.1	338.8	338.5	338.6	338.6	338.6	338.5	338.8	339.1	338.8	338.5
36°	336.0	336.2	335.7	335.9	336.1	335.9	335.7	336.2	336.0	336.2	335.7
36.5°	333.2	333.2	332.8	333.0	332.9	333.0	332.8	333.2	333.2	333.2	332.8
37°	330.3	330.1	329.8	329.8	330.0	329.8	329.8	330.1	330.3	330.1	329.8
37.5°	327.1	327.1	326.7	326.8	327.2	326.8	326.7	327.1	327.1	327.1	326.7
38°	324.0	324.2	323.8	323.8	324.1	323.8	323.8	324.2	324.0	324.2	323.8
38.5°	320.9	321.0	320.6	320.7	320.9	320.7	320.6	321.0	320.9	321.0	320.6
39°	317.5	317.5	317.5	317.4	317.7	317.4	317.5	317.5	317.5	317.5	317.5
39.5°	314.6	314.4	314.3	314.3	314.2	314.3	314.3	314.4	314.6	314.4	314.3
40°	311.5	311.2	311.0	311.1	311.0	311.1	311.0	311.2	311.5	311.2	311.0
40.5°	308.1	307.7	307.4	307.6	307.8	307.6	307.4	307.7	308.1	307.7	307.4
41°	304.6	304.2	304.1	304.1	304.7	304.1	304.1	304.2	304.6	304.2	304.1
41.5°	301.1	300.9	300.8	300.8	301.0	300.8	300.8	300.9	301.1	300.9	300.8
42°	297.5	297.5	297.5	297.3	297.6	297.3	297.5	297.5	297.5	297.5	297.5
42.5°	294.1	294.0	293.9	293.9	294.1	293.9	293.9	294.0	294.1	294.0	293.9
43°	290.6	290.4	290.2	290.2	290.6	290.2	290.2	290.4	290.6	290.4	290.2
43.5°	287.1	286.7	286.5	286.7	286.9	286.7	286.5	286.7	287.1	286.7	286.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	276.1	275.7	275.7	275.8	276.0	275.8	275.7	275.7	276.1	275.7	275.7
45.5°	272.1	272.0	272.0	272.0	271.9	272.0	272.0	272.0	272.1	272.0	272.0
46°	268.2	268.4	268.3	268.2	268.1	268.2	268.3	268.4	268.2	268.4	268.3
46.5°	264.4	264.5	264.5	264.5	264.4	264.5	264.5	264.5	264.4	264.5	264.5
47°	260.5	260.5	260.7	260.6	260.6	260.6	260.7	260.5	260.5	260.5	260.7
47.5°	256.8	256.5	256.6	256.6	257.0	256.6	256.6	256.5	256.8	256.5	256.6
48°	253.0	252.8	252.7	252.7	253.1	252.7	252.7	252.8	253.0	252.8	252.7
48.5°	249.2	249.1	249.1	249.0	249.1	249.0	249.1	249.1	249.2	249.1	249.1
49°	245.5	245.4	245.3	245.1	245.4	245.1	245.3	245.4	245.5	245.4	245.3
49.5°	241.3	241.3	241.2	241.3	241.5	241.3	241.2	241.3	241.3	241.3	241.2
50°	237.2	237.3	237.3	237.6	237.5	237.6	237.3	237.3	237.2	237.3	237.3
50.5°	233.5	233.3	233.4	233.7	233.5	233.7	233.4	233.3	233.5	233.3	233.4
51°	229.6	229.5	229.5	229.6	229.7	229.6	229.5	229.5	229.6	229.5	229.5
51.5°	225.5	225.5	225.6	225.7	225.8	225.7	225.6	225.5	225.5	225.5	225.6
52°	221.6	221.6	221.6	221.7	221.8	221.7	221.6	221.6	221.6	221.6	221.6
52.5°	217.7	217.6	217.7	217.8	217.9	217.8	217.7	217.6	217.7	217.6	217.7
53°	213.9	213.8	213.7	213.9	214.0	213.9	213.7	213.8	213.9	213.8	213.7
53.5°	210.0	209.7	209.8	210.0	210.2	210.0	209.8	209.7	210.0	209.7	209.8
54°	205.8	205.7	205.8	206.1	206.4	206.1	205.8	205.7	205.8	205.7	205.8
54.5°	201.8	201.8	202.0	202.3	202.6	202.3	202.0	201.8	201.8	201.8	202.0
55°	198.5	198.1	198.1	198.6	198.6	198.6	198.1	198.1	198.5	198.1	198.1
55.5°	194.6	194.2	194.4	194.6	194.8	194.6	194.4	194.2	194.6	194.2	194.4
56°	190.5	190.3	190.5	190.7	190.7	190.7	190.5	190.3	190.5	190.3	190.5
56.5°	186.8	186.6	186.6	186.8	187.0	186.8	186.6	186.6	186.8	186.6	186.6
57°	182.9	182.8	182.7	183.0	183.2	183.0	182.7	182.8	182.9	182.8	182.7
57.5°	179.0	178.7	178.9	179.0	179.5	179.0	178.9	178.7	179.0	178.7	178.9
58°	175.3	175.0	175.1	175.4	175.4	175.4	175.1	175.0	175.3	175.0	175.1
58.5°	171.4	171.4	171.4	171.6	171.8	171.6	171.4	171.4	171.4	171.4	171.4
59°	167.5	167.6	167.7	167.9	167.9	167.9	167.7	167.6	167.5	167.6	167.7
59.5°	163.9	163.8	164.0	164.0	164.4	164.0	164.0	163.8	163.9	163.8	164.0
60°	160.3	160.2	160.4	160.5	160.8	160.5	160.4	160.2	160.3	160.2	160.4
60.5°	156.5	156.5	156.6	156.9	157.1	156.9	156.6	156.5	156.5	156.5	156.6
61°	152.9	152.9	153.0	153.2	153.3	153.2	153.0	152.9	152.9	152.9	153.0
61.5°	149.2	149.3	149.5	149.5	149.7	149.5	149.5	149.3	149.2	149.3	149.5
62°	145.6	145.7	145.8	146.0	146.0	146.0	145.8	145.7	145.6	145.7	145.8
62.5°	142.0	142.1	142.2	142.4	142.5	142.4	142.2	142.1	142.0	142.1	142.2
63°	138.4	138.4	138.7	138.8	138.9	138.8	138.7	138.4	138.4	138.4	138.7
63.5°	135.0	135.1	135.2	135.3	135.5	135.3	135.2	135.1	135.0	135.1	135.2
64°	131.5	131.6	131.8	131.9	132.0	131.9	131.8	131.6	131.5	131.6	131.8
64.5°	127.9	128.1	128.3	128.4	128.4	128.4	128.3	128.1	127.9	128.1	128.3
65°	124.5	124.7	124.9	125.0	125.1	125.0	124.9	124.7	124.5	124.7	124.9
65.5°	121.2	121.3	121.6	121.7	121.8	121.7	121.6	121.3	121.2	121.3	121.6
66°	118.0	118.0	118.2	118.2	118.4	118.2	118.2	118.0	118.0	118.0	118.2



TEST NUMBER: P938658

CATALOG NUMBER: HLB4LSFS5-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	108.0	108.1	108.1	108.4	108.5	108.4	108.1	108.1	108.0	108.1	108.1
68°	104.9	104.9	105.0	105.2	105.4	105.2	105.0	104.9	104.9	104.9	105.0
68.5°	101.6	101.7	101.8	102.0	102.1	102.0	101.8	101.7	101.6	101.7	101.8
69°	98.4	98.5	98.7	98.9	98.9	98.9	98.7	98.5	98.4	98.5	98.7
69.5°	95.4	95.4	95.5	95.7	96.0	95.7	95.5	95.4	95.4	95.4	95.5
70°	92.3	92.4	92.5	92.7	92.9	92.7	92.5	92.4	92.3	92.4	92.5
70.5°	89.3	89.3	89.5	89.7	89.8	89.7	89.5	89.3	89.3	89.3	89.5
71°	86.3	86.3	86.4	86.7	86.8	86.7	86.4	86.3	86.3	86.3	86.4
71.5°	83.4	83.4	83.4	83.8	84.0	83.8	83.4	83.4	83.4	83.4	83.4
72°	80.5	80.5	80.5	80.8	81.0	80.8	80.5	80.5	80.5	80.5	80.5
72.5°	77.5	77.5	77.7	77.9	78.1	77.9	77.7	77.5	77.5	77.5	77.7
73°	74.8	74.7	74.9	75.2	75.3	75.2	74.9	74.7	74.8	74.7	74.9
73.5°	72.0	71.8	72.0	72.3	72.5	72.3	72.0	71.8	72.0	71.8	72.0
74°	69.1	69.1	69.1	69.5	69.8	69.5	69.1	69.1	69.1	69.1	69.1
74.5°	66.5	66.3	66.5	66.8	67.1	66.8	66.5	66.3	66.5	66.3	66.5
75°	63.7	63.7	63.8	64.1	64.3	64.1	63.8	63.7	63.7	63.7	63.8
75.5°	61.1	61.0	61.1	61.4	61.6	61.4	61.1	61.0	61.1	61.0	61.1
76°	58.5	58.4	58.5	58.7	59.0	58.7	58.5	58.4	58.5	58.4	58.5
76.5°	55.9	55.8	55.9	56.1	56.3	56.1	55.9	55.8	55.9	55.8	55.9
77°	53.4	53.2	53.4	53.7	53.9	53.7	53.4	53.2	53.4	53.2	53.4
77.5°	50.9	50.8	50.9	51.1	51.3	51.1	50.9	50.8	50.9	50.8	50.9
78°	48.3	48.2	48.3	48.6	48.8	48.6	48.3	48.2	48.3	48.2	48.3
78.5°	45.9	45.8	45.9	46.2	46.6	46.2	45.9	45.8	45.9	45.8	45.9
79°	43.4	43.4	43.5	43.7	44.1	43.7	43.5	43.4	43.4	43.4	43.5
79.5°	41.1	41.1	41.1	41.4	41.6	41.4	41.1	41.1	41.1	41.1	41.1
80°	38.7	38.6	38.7	38.9	39.2	38.9	38.7	38.6	38.7	38.6	38.7
80.5°	36.4	36.5	36.4	36.6	36.8	36.6	36.4	36.5	36.4	36.5	36.4
81°	34.0	34.1	34.1	34.3	34.5	34.3	34.1	34.1	34.0	34.1	34.1
81.5°	31.7	31.8	31.8	32.1	32.2	32.1	31.8	31.8	31.7	31.8	31.8
82°	29.5	29.5	29.6	29.8	29.9	29.8	29.6	29.5	29.5	29.5	29.6
82.5°	27.2	27.3	27.4	27.6	27.6	27.6	27.4	27.3	27.2	27.3	27.4
83°	25.1	25.1	25.2	25.4	25.5	25.4	25.2	25.1	25.1	25.1	25.2
83.5°	22.9	22.9	23.0	23.2	23.3	23.2	23.0	22.9	22.9	22.9	23.0
84°	20.8	20.8	20.9	21.1	21.2	21.1	20.9	20.8	20.8	20.8	20.9
84.5°	18.7	18.7	18.8	18.9	19.0	18.9	18.8	18.7	18.7	18.7	18.8
85°	16.7	16.7	16.8	16.9	17.0	16.9	16.8	16.7	16.7	16.7	16.8
85.5°	14.6	14.6	14.6	14.7	14.8	14.7	14.6	14.6	14.6	14.6	14.6
86°	12.6	12.6	12.7	12.7	12.8	12.7	12.7	12.6	12.6	12.6	12.7
86.5°	10.5	10.5	10.9	11.0	11.3	11.0	10.9	10.5	10.5	10.5	10.9
87°	8.6	8.9	9.2	9.2	9.7	9.2	9.2	8.9	8.6	8.9	9.2
87.5°	6.6	7.2	7.5	7.5	8.2	7.5	7.5	7.2	6.6	7.2	7.5
88°	5.2	5.4	5.7	6.0	6.7	6.0	5.7	5.4	5.2	5.4	5.7
88.5°	3.8	4.0	4.2	5.0	5.6	5.0	4.2	4.0	3.8	4.0	4.2



TEST NUMBER: P938658
CATALOG NUMBER: HLB4LSFS5-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P938658

CATALOG NUMBER: HLB4LSFS5-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	414.5	414.5	414.5	414.5	414.5	414.5
0.5°	414.3	414.8	414.3	414.1	414.5	414.9
1°	414.2	414.8	414.2	414.1	414.2	414.7
1.5°	414.3	414.4	414.3	414.4	414.4	414.7
2°	414.2	414.1	414.2	414.2	414.4	414.3
2.5°	414.2	414.0	414.2	414.1	414.2	414.2
3°	414.1	414.5	414.1	414.0	414.2	414.7
3.5°	413.8	414.4	413.8	413.7	414.4	414.4
4°	413.5	414.2	413.5	413.6	413.8	414.0
4.5°	413.6	414.0	413.6	413.6	413.5	413.5
5°	413.5	414.0	413.5	413.7	413.7	413.9
5.5°	413.3	414.0	413.3	413.5	413.5	413.9
6°	413.0	413.5	413.0	413.0	413.1	413.5
6.5°	412.9	412.8	412.9	412.5	412.9	413.1
7°	412.5	412.5	412.5	412.5	412.7	413.0
7.5°	412.3	412.7	412.3	412.3	412.5	412.9
8°	412.0	412.5	412.0	412.0	412.3	412.6
8.5°	411.8	411.7	411.8	411.5	411.9	412.1
9°	411.3	411.2	411.3	411.2	411.5	411.9
9.5°	411.0	410.9	411.0	410.7	411.2	411.5
10°	410.5	410.6	410.5	410.7	410.9	410.9
10.5°	410.3	410.2	410.3	410.4	410.5	410.6
11°	409.9	410.1	409.9	410.1	410.0	410.2
11.5°	409.3	409.4	409.3	409.4	409.5	409.8
12°	408.6	408.8	408.6	408.8	409.0	409.1
12.5°	408.1	408.2	408.1	408.3	408.5	408.6
13°	408.0	407.8	408.0	407.9	408.2	408.3
13.5°	407.8	407.5	407.8	407.1	407.8	407.5
14°	406.7	406.8	406.7	406.7	407.0	406.8
14.5°	405.9	406.1	405.9	406.1	406.1	406.3
15°	405.3	405.6	405.3	405.2	405.3	405.6
15.5°	404.7	405.1	404.7	404.5	404.7	404.8
16°	403.9	404.4	403.9	403.9	404.1	404.4
16.5°	403.4	403.3	403.4	403.1	403.4	403.7
17°	402.3	402.5	402.3	402.4	402.5	402.8
17.5°	401.5	401.7	401.5	401.5	401.6	402.0
18°	400.5	401.0	400.5	400.8	400.8	401.4
18.5°	399.8	399.9	399.8	400.0	400.0	400.8
19°	398.6	399.1	398.6	398.8	399.3	399.6
19.5°	397.9	398.0	397.9	397.7	398.0	397.9
20°	396.9	396.8	396.9	397.0	397.1	396.5
20.5°	395.9	395.8	395.9	395.6	396.1	395.8
21°	394.3	395.2	394.3	394.5	395.1	395.3



TEST NUMBER: P938658

CATALOG NUMBER: HLB4LSFS5-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	391.1	391.0	391.1	390.9	391.3	391.7
23°	389.6	389.5	389.6	389.6	389.9	390.3
23.5°	388.2	388.2	388.2	388.1	388.3	388.9
24°	386.7	387.0	386.7	387.0	387.3	387.3
24.5°	385.3	385.5	385.3	385.4	386.1	385.3
25°	383.8	384.1	383.8	384.0	384.0	384.3
25.5°	382.4	382.4	382.4	382.5	382.4	382.9
26°	380.8	381.1	380.8	380.8	380.9	381.2
26.5°	379.0	379.5	379.0	379.1	379.3	379.5
27°	377.2	377.6	377.2	377.5	377.7	378.0
27.5°	375.7	375.7	375.7	375.6	376.0	376.7
28°	373.8	374.0	373.8	373.8	374.0	374.4
28.5°	371.8	371.9	371.8	371.6	371.9	371.9
29°	369.8	370.0	369.8	369.8	370.1	370.4
29.5°	367.5	367.9	367.5	367.7	368.0	368.5
30°	365.5	366.0	365.5	365.8	365.9	366.2
30.5°	363.5	364.0	363.5	363.7	363.5	363.7
31°	361.4	361.7	361.4	361.5	361.5	361.9
31.5°	359.0	359.4	359.0	358.9	359.5	359.8
32°	356.6	357.3	356.6	356.7	357.1	357.1
32.5°	354.2	354.6	354.2	354.5	354.5	354.3
33°	351.9	351.7	351.9	352.3	352.1	352.1
33.5°	349.4	349.4	349.4	349.4	349.7	349.7
34°	346.7	347.0	346.7	346.6	347.2	347.0
34.5°	343.9	344.5	343.9	344.0	344.3	344.7
35°	341.3	341.5	341.3	341.4	341.3	342.0
35.5°	338.6	338.6	338.6	338.5	338.8	339.1
36°	335.9	336.1	335.9	335.7	336.2	336.0
36.5°	333.0	332.9	333.0	332.8	333.2	333.2
37°	329.8	330.0	329.8	329.8	330.1	330.3
37.5°	326.8	327.2	326.8	326.7	327.1	327.1
38°	323.8	324.1	323.8	323.8	324.2	324.0
38.5°	320.7	320.9	320.7	320.6	321.0	320.9
39°	317.4	317.7	317.4	317.5	317.5	317.5
39.5°	314.3	314.2	314.3	314.3	314.4	314.6
40°	311.1	311.0	311.1	311.0	311.2	311.5
40.5°	307.6	307.8	307.6	307.4	307.7	308.1
41°	304.1	304.7	304.1	304.1	304.2	304.6
41.5°	300.8	301.0	300.8	300.8	300.9	301.1
42°	297.3	297.6	297.3	297.5	297.5	297.5
42.5°	293.9	294.1	293.9	293.9	294.0	294.1
43°	290.2	290.6	290.2	290.2	290.4	290.6
43.5°	286.7	286.9	286.7	286.5	286.7	287.1



TEST NUMBER: P938658

CATALOG NUMBER: HLB4LSFS5-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	275.8	276.0	275.8	275.7	275.7	276.1
45.5°	272.0	271.9	272.0	272.0	272.0	272.1
46°	268.2	268.1	268.2	268.3	268.4	268.2
46.5°	264.5	264.4	264.5	264.5	264.5	264.4
47°	260.6	260.6	260.6	260.7	260.5	260.5
47.5°	256.6	257.0	256.6	256.6	256.5	256.8
48°	252.7	253.1	252.7	252.7	252.8	253.0
48.5°	249.0	249.1	249.0	249.1	249.1	249.2
49°	245.1	245.4	245.1	245.3	245.4	245.5
49.5°	241.3	241.5	241.3	241.2	241.3	241.3
50°	237.6	237.5	237.6	237.3	237.3	237.2
50.5°	233.7	233.5	233.7	233.4	233.3	233.5
51°	229.6	229.7	229.6	229.5	229.5	229.6
51.5°	225.7	225.8	225.7	225.6	225.5	225.5
52°	221.7	221.8	221.7	221.6	221.6	221.6
52.5°	217.8	217.9	217.8	217.7	217.6	217.7
53°	213.9	214.0	213.9	213.7	213.8	213.9
53.5°	210.0	210.2	210.0	209.8	209.7	210.0
54°	206.1	206.4	206.1	205.8	205.7	205.8
54.5°	202.3	202.6	202.3	202.0	201.8	201.8
55°	198.6	198.6	198.6	198.1	198.1	198.5
55.5°	194.6	194.8	194.6	194.4	194.2	194.6
56°	190.7	190.7	190.7	190.5	190.3	190.5
56.5°	186.8	187.0	186.8	186.6	186.6	186.8
57°	183.0	183.2	183.0	182.7	182.8	182.9
57.5°	179.0	179.5	179.0	178.9	178.7	179.0
58°	175.4	175.4	175.4	175.1	175.0	175.3
58.5°	171.6	171.8	171.6	171.4	171.4	171.4
59°	167.9	167.9	167.9	167.7	167.6	167.5
59.5°	164.0	164.4	164.0	164.0	163.8	163.9
60°	160.5	160.8	160.5	160.4	160.2	160.3
60.5°	156.9	157.1	156.9	156.6	156.5	156.5
61°	153.2	153.3	153.2	153.0	152.9	152.9
61.5°	149.5	149.7	149.5	149.5	149.3	149.2
62°	146.0	146.0	146.0	145.8	145.7	145.6
62.5°	142.4	142.5	142.4	142.2	142.1	142.0
63°	138.8	138.9	138.8	138.7	138.4	138.4
63.5°	135.3	135.5	135.3	135.2	135.1	135.0
64°	131.9	132.0	131.9	131.8	131.6	131.5
64.5°	128.4	128.4	128.4	128.3	128.1	127.9
65°	125.0	125.1	125.0	124.9	124.7	124.5
65.5°	121.7	121.8	121.7	121.6	121.3	121.2
66°	118.2	118.4	118.2	118.2	118.0	118.0



TEST NUMBER: P938658

CATALOG NUMBER: HLB4LSFS5-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	108.4	108.5	108.4	108.1	108.1	108.0
68°	105.2	105.4	105.2	105.0	104.9	104.9
68.5°	102.0	102.1	102.0	101.8	101.7	101.6
69°	98.9	98.9	98.9	98.7	98.5	98.4
69.5°	95.7	96.0	95.7	95.5	95.4	95.4
70°	92.7	92.9	92.7	92.5	92.4	92.3
70.5°	89.7	89.8	89.7	89.5	89.3	89.3
71°	86.7	86.8	86.7	86.4	86.3	86.3
71.5°	83.8	84.0	83.8	83.4	83.4	83.4
72°	80.8	81.0	80.8	80.5	80.5	80.5
72.5°	77.9	78.1	77.9	77.7	77.5	77.5
73°	75.2	75.3	75.2	74.9	74.7	74.8
73.5°	72.3	72.5	72.3	72.0	71.8	72.0
74°	69.5	69.8	69.5	69.1	69.1	69.1
74.5°	66.8	67.1	66.8	66.5	66.3	66.5
75°	64.1	64.3	64.1	63.8	63.7	63.7
75.5°	61.4	61.6	61.4	61.1	61.0	61.1
76°	58.7	59.0	58.7	58.5	58.4	58.5
76.5°	56.1	56.3	56.1	55.9	55.8	55.9
77°	53.7	53.9	53.7	53.4	53.2	53.4
77.5°	51.1	51.3	51.1	50.9	50.8	50.9
78°	48.6	48.8	48.6	48.3	48.2	48.3
78.5°	46.2	46.6	46.2	45.9	45.8	45.9
79°	43.7	44.1	43.7	43.5	43.4	43.4
79.5°	41.4	41.6	41.4	41.1	41.1	41.1
80°	38.9	39.2	38.9	38.7	38.6	38.7
80.5°	36.6	36.8	36.6	36.4	36.5	36.4
81°	34.3	34.5	34.3	34.1	34.1	34.0
81.5°	32.1	32.2	32.1	31.8	31.8	31.7
82°	29.8	29.9	29.8	29.6	29.5	29.5
82.5°	27.6	27.6	27.6	27.4	27.3	27.2
83°	25.4	25.5	25.4	25.2	25.1	25.1
83.5°	23.2	23.3	23.2	23.0	22.9	22.9
84°	21.1	21.2	21.1	20.9	20.8	20.8
84.5°	18.9	19.0	18.9	18.8	18.7	18.7
85°	16.9	17.0	16.9	16.8	16.7	16.7
85.5°	14.7	14.8	14.7	14.6	14.6	14.6
86°	12.7	12.8	12.7	12.7	12.6	12.6
86.5°	11.0	11.3	11.0	10.9	10.5	10.5
87°	9.2	9.7	9.2	9.2	8.9	8.6
87.5°	7.5	8.2	7.5	7.5	7.2	6.6
88°	6.0	6.7	6.0	5.7	5.4	5.2
88.5°	5.0	5.6	5.0	4.2	4.0	3.8



TEST NUMBER: P938658

CATALOG NUMBER: HLB4LSFS5-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270° - · - 135°-315°







21.5°	393.9	393.7	393.6	393.2	393.5	393.2	393.6	393.7	393.9	393.7	393.6
22°	392.9	392.4	392.3	392.1	392.1	392.1	392.3	392.4	392.9	392.4	392.3



44°	283.2	283.1	282.9	283.1	283.1	283.1	282.9	283.1	283.2	283.1	282.9
44.5°	279.7	279.6	279.2	279.5	279.6	279.5	279.2	279.6	279.7	279.6	279.2



66.5°	114.5	114.6	114.8	114.9	115.0	114.9	114.8	114.6	114.5	114.6	114.8
67°	111.2	111.4	111.4	111.7	111.8	111.7	111.4	111.4	111.2	111.4	111.4



89°	2.4	2.7	3.2	4.0	4.6	4.0	3.2	2.7	2.4	2.7	3.2
89.5°	1.0	1.7	2.5	3.1	3.6	3.1	2.5	1.7	1.0	1.7	2.5





21.5°	393.2	393.5	393.2	393.6	393.7	393.9
22°	392.1	392.1	392.1	392.3	392.4	392.9



44°	283.1	283.1	283.1	282.9	283.1	283.2
44.5°	279.5	279.6	279.5	279.2	279.6	279.7



66.5°	114.9	115.0	114.9	114.8	114.6	114.5
67°	111.7	111.8	111.7	111.4	111.4	111.2



89°	4.0	4.6	4.0	3.2	2.7	2.4
89.5°	3.1	3.6	3.1	2.5	1.7	1.0



(END OF REPORT)